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U. S. DEPARTMENT OF AGRICULTURE

Cooperative
ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
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Volume 6 November 16, 1956 Number 46

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID continues active in several States. (p. 1055).

SPINACH LEAF MINER locally heavy on spinach in Maryland. (p. 1056).

BOLL WEEVIL numbers may be high going into hibernation in Arkansas. (p. 1057).

SCREW-WORM cases reported from South Carolina, Oklahoma and Louisiana. (p. 1058).

MOSQUITOES show increase in some eastern North Carolina counties. (p. 1058).

Status of imported parasites of SPOTTED ALFALFA APHID in California. (p. 1059).

AN APHID (*Hoplochaitophorus quercicola*) reported from Utah for first time. (p. 1057).

SUMMARY OF INSECT CONDITIONS - 1956 - Arizona. (p. 1061).

CORRECTION. (p. 1056).

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Reports in this issue are for the week ending November 9 unless otherwise designated.

WEATHER OF THE WEEK ENDING NOVEMBER 13, 1956

An early season freeze in the deep south and a late season heat wave in the far southwest were the main temperature features of the week. Precipitation was very light over most of the country with moderate to heavy amounts limited to sections in the Mississippi Valley and deep south and parts of Virginia and North Carolina. Most of the week's precipitation fell in the eastern third of the country, during the first half of the week as a low pressure trough moved eastward from the Mississippi Valley. Cold air moving in behind the trough covered all of the nation except the far southwest by the week end. Temperatures dropped to 32° or below in south central and southeastern Texas and to near the Gulf Coast from Louisiana eastward. Freezing occurred in some colder locations in central Florida and scattered frost was reported in the Everglades. Jacksonville and Miami, Florida reported their lowest temperatures on record for so early in the season on the 10th, 31° and 49° respectively. On the 11th, temperatures fell to record low level for so early in the season in the northeast at a number of locations including Putnam and Hartford, Connecticut 8° and 12° respectively, and Providence, Rhode Island, 16° Following a cold spell in the far southwest, near the end of the previous week during which the first freeze of the season occurred in California's Imperial Valley, temperatures rose rapidly reaching unseasonably high levels on the 7th and the following two or three days. Late season highs included 95° at Los Angeles on the 8th and 74° at Winnemucca, Nevada on the 9th. Also the late season record was 75° for Flagstaff, Arizona was equaled on the 11th. Warmer weather in the west melted much of the snow which fell during the previous week's blizzard in the northern Great Plains. The snow cover in the Cascades also melted below the 3500 foot level. But depth remained at 20-30 inches at 5000 feet. Snow flurries were quite general in northern areas east of the Rockies. The first snowfall of the season in many sections but the only accumulations reported were some two inch depth in northern New England. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Larvae averaged 381 per 100 plants in fall 1956 over State as compared with 167 per 100 plants in fall of 1955. (N.J. Dept. Ag. & Rutgers Univ.). NEBRASKA - Larvae averaged 131 per 100 plants in 62 counties in fall survey. Highest average was in northeast, 255 larvae per 100 stalks and smallest in southeast, 50 larvae per 100 stalks. (Andersen).

GRASSHOPPERS (Melanoplus sp.) - IDAHO - Spotted infestations 10 to 15 adults per square yard along upper southern exposed slopes of lower Clearwater Canyon. (Barr).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - Infestations at St. John, Stafford County and near Nickerson, Reno County average around 90 percent. (Painter). OKLAHOMA - Ninety-five percent of larvae at Stillwater were winter forms and summer forms remaining or molting to winter forms. One live pupa found November 7. (Hensley, Arbuthnot).

ARMYWORMS - LOUISIANA - Pseudaletia unipuncta and Laphygma frugiperda lightly infesting oats and wheat in East Baton Rouge, East Feliciana, West Feliciana, Saint Helena and Washington Parishes. (Oliver).

A CHINCH BUG (Blissus leucopterus insularis) - FLORIDA - Heavily infesting 100 acres of St. Augustine grass pasture in Hendry County. Pasture flooded in attempt to control infestation. (Genung, Oct. 10).

LEAFHOPPERS - SOUTH CAROLINA - Unusually abundant on small grain near Beaufort. (Nettles).

SPOTTED ALFALFA APHID - MINNESOTA - Found in Lyon and Redwood Counties for first time. Total of 12 counties infested to Nov. 6. (Flaskerd). UTAH - Active and often numerous in southern counties. Survived recent cold of 14 to 18 degrees F. in Salt Lake City. Moderately numerous in all succulent alfalfa fields in Davis, Salt Lake, Juab and Utah Counties. (Knowlton). TEXAS - Light local infestation on alfalfa in Rockwall County. (Hawkins). LOUISIANA - Populations in alfalfa fields very light in Natchitoches, Red River, Bossier and Claiborne Parishes. Heavy populations of predators keeping infestations in check. (Oliver). VIRGINIA - Collected for first time in Fluvanna County. Inspections in Albemarle and Orange Counties were negative. (App, Manglitz, Bissell). MISSISSIPPI - Destroying stand of small alfalfa in Pontotoc County. (Young). KANSAS - A few heavy populations in local northeast areas. Lower populations general in this area. (Matthew).

PEA APHID (Macrosiphum pisi) - UTAH - Survived recent snow storms and frost. Moderately numerous in all succulent alfalfa fields in northern area. (Knowlton).

RUSTY PLUM APHID (*Hysteroneura setariae*) - ARIZONA - Heavy flights in Salt River Valley beginning in late September, peak in late October and continuing to present. Some fields grain sorghum have been very heavily infested. (Ariz. Coop. Rept.).

ALFALFA WEEVIL (*Hypera postica*) - WEST VIRGINIA - Adults and larvae easily collected by sweeping alfalfa in Berkeley and Jefferson Counties. (Dorsey, Hansen, Gillespie).

ERIOPHYID MITES - KANSAS - Colonies of eriophyids, probably *Aceria tulipae*, found in wheat fields in Marshall and Washington Counties. (Matthew).

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Populations building up in northwestern parishes. Counts per 100 sweeps were 60 in Natchitoches Parish, 80 to 120 in Bossier and Red River Parishes. (Oliver).

FRUIT INSECTS

PURPLE SCALE (*Lepidosaphes beckii*) - FLORIDA - Peak hatch expected on citrus in late November. (Pratt, Thompson, Johnson).

PECAN WEEVIL (*Curculio caryae*) - OKLAHOMA - Larvae emerging from pecans to enter ground. (Flora).

TRUCK CROP INSECTS

SPINACH LEAF MINER (*Pegomya hyoscyami*) - MARYLAND - Local heavy infestations in all spinach-growing sections. Growers concerned. (U. Md., Ent. Dept.).

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - Light to moderate on spinach in all spinach-growing sections. (U. Md., Ent. Dept.).

CABBAGE LOOPER (*Trichoplusia ni*) - TEXAS - Light widespread populations on kale crops in Dimmit and Zavala Counties. (Richardson).

BEET LEAFHOPPER (*Circulifer tenellus*) - TEXAS - Light to heavy widespread populations on spinach and beets in Zavala County. (Richardson).

GARDEN WEBWORM (*Loxostege similalis*) - TEXAS - Light to heavy widespread populations on spinach in Zavala County. (Richardson).

CORRECTION

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Corr. approp. CA.

CEIR 6(44): 1028 - Khapra Beetle Progress Report - Figures for Arizona under Vol. Tr. & Released column should read 29,912,226; and Totals for same column should read 94,190,181.

COTTON INSECTS

BOLLWORMS (*Heliothis* spp.) - SOUTH CAROLINA - Summary of black light trap catches of *Heliothis* at Florence during 1955 and 1956 from April 16 to October 15 was as follows: *Heliothis zea* 47,120 (1955), 41,189 (1956); *H. virescens* 716 (1955), 2840 (1956). (Walker). ARKANSAS - Infestations remaining active in succulent second-growth cotton in southwestern and northeastern counties. (Warren).

BOLL WEEVIL (*Anthonomus grandis*) - ARKANSAS - Infestations have remained active in succulent second-growth cotton in southwestern and northeastern counties. In some areas, particularly northeastern counties, infestations greater and more widespread than in early September. In general, conditions favored increase over State. Number going into hibernation may be high in many local areas. (Warren).

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - To November 2, 32,330 green cotton bolls examined and 9,737 bushels of gin trash inspected in San Joaquin Valley with no indication of infestation. (Cal. Coop. Rept.).

COTTON LEAFWORM (*Alabama argillacea*) - ARKANSAS - Late season infestations very light and occurrence local in southwestern counties. (Warren).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN APHID (*Hoplochaitophorus quercicola*) - UTAH - Heavily infesting young oak trees in Utah, Salt Lake and Davis Counties this fall. New State record. Det. E.O. Essig. (Knowlton).

IPS BEETLES - ARKANSAS - Decreasing activity generally due to rain and lower temperatures. Greatest activity in southwestern area. (Ark. For. Comm., Nov. 1).

COTTONY CUSHION SCALE (*Icerya purchasi*) - NORTH CAROLINA - General and extensive on pyrocantha and mimosa around Southport in Brunswick County. Crawlers hatched and moving on November 3. (Aycock, Farrier).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - Surveys in Woodward, Harper, Osage, Payne, Coal and Cherokee Counties indicated that 20 to 30 percent of cattle have grubs in backs. (Howell). In Canadian County, 12 of 52 cattle examined grubby. Buyers at stock yards begun to discount for infested cattle. (Flora). KANSAS - Examination of herd of 50 cattle averaging 900 to 1200 pounds in Ellis County averaged 1.2 grubs per animal. Another herd of 128 head averaging 400 to 600 pounds averaged 3.2 grubs per animal. (Matthew).

CATTLE LICE - UTAH - Abundant and injurious in herds in several counties. Dipping and spraying in number of localities. (Knowlton).

EAR TICK - OKLAHOMA - Cattle heavily infested in Canadian County. (Howell).

FLIES - OKLAHOMA - Stable flies and house flies greatly reduced in number around farm buildings. (Howell).

MOSQUITOES - NORTH CAROLINA - Severe outbreak of *Psorophora ciliata* in Dare County second week of October. Populations of *Aedes sollicitans* decreasing in Dare, Hyde, Currituck, Tyrrell and Beaufort Counties. Populations increase in Pamlico and Onslow Counties with sharp increase in New Hanover and Brunswick Counties. Increase attributed to large amount of rainfall. (Cromroy, Nov. 2).

SCREW-WORM (*Callitroga hominivorax*) - SOUTH CAROLINA - On cattle in Blackville, Barnwell County. First report in two years in county. (Shelley, October 22). Reported on cattle in Allendale County. (Rogers). OKLAHOMA - Reported from Lincoln and Stephens Counties. (Flora). LOUISIANA - Found in wounds of two cows in herd of 150 in Bossier Parish. (Oliver).

TABANIDS- OKLAHOMA - Extensive surveys in central and eastern areas indicate that numbers of larvae commonly found in drier areas greatly reduced and those closely associated with free water approximately the same. *Tabanus atratus* larvae most often found in central area and *T. atratus* and *T. trimaculatus* in eastern area. Almost all larvae nearly mature. (Flora).

STORED PRODUCTS INSECTS

MEDITERRANEAN FLOUR MOTH (*Anagasta kuhniella*) - OREGON - Infested several pounds of lavender used in manufacture of sachets at Salem. (Capizzi).

Stored Grain Insect Situation, Arkansas: In Stuttgart-Dewitt area, 115 bins on 72 farms examined. Of these, 28 located on 16 farms infested. Only 4 of 115 bins held oats, with remainder filled with rice. Infestations were as follows: *Tribolium* sp. - 6 bins; saw-toothed grain beetle - 13 bins; flat grain beetle - 1 bin; Angoumois grain moth - 8 bins; Indian-meal moth - 1 bin; fungus beetles - 5 bins; and psocids - 8 bins. (Rouse). Twenty bins of corn, rice, oats, wheat, milo and barley examined on 8 farms in St. Francis, Clay and Randolph Counties. Screening of gallon top samples showed following infestations: *Tribolium* sp. - 6 bins; saw-toothed grain beetle- 5 bins; lesser grain borer - 2 bins; Angoumois grain moth - 5 bins; rice weevil - 3 bins; flat grain beetle - 6 bins; and cadelle - 1 bin. Examinations of ear corn unloaded at elevator in St. Francis County showed evidence of infestation to 3 out of 10 ears by Angoumois grain moth. (Warren, Harrendorf, Barnes). Numerous reports of field infestation of corn in eastern area. (Warren).

MEAL MOTH (*Pyralis farinalis*) - NORTH CAROLINA - Almost complete destruction of undetermined quantity of iris bulbs in New Hanover County. (Aycock, Rabb).

BENEFICIAL INSECTS

GREATER WAX MOTH (*Galleria mellonella*) - OREGON - Uncommonly prevalent in hives near North Plains. (Goeden).

KLAMATH WEED BEETLES (*Chrysolina* spp.) - IDAHO - Egg deposition extremely heavy this fall on goat weed throughout lower Clearwater drainage. (Barr).

Imported Parasites of the Spotted Alfalfa Aphid in California: In recent months there has been a dynamic change in field status of imported parasites, *Praon palitans*, *Trioxys utilis*, *Aphelinus semiflavus* of the spotted alfalfa aphid. By far the most promising development has taken place in the Antelope Valley, Los Angeles County, where *P. palitans* and *T. utilis* have multiplied to tremendous abundance in vicinity of the release site and have spread over a considerable area. The spread of *P. palitans* has been particularly rapid, this species now being distributed over an estimated 50 square mile area while *T. utilis* occurs over a 5 to 10 square mile area. Where the two species are coextensive, *T. utilis* has developed to greater abundance, an indication that it may eventually develop to a status of greater importance than *P. palitans* despite its slower rate of dissemination. The third parasite, *A. semiflavus*, has not followed the performances of *P. palitans* and *T. utilis* and has only been recovered in very small numbers in the vicinity of the original colonization site. Field colonization of parasites has been given a great boost through dissemination of parasite-bearing alfalfa from the Antelope Valley. In this way, upwards of thirty million parasites have been distributed at a number of places in seven counties, and substantial parasite recoveries has been made at most of the release sites. Distribution of the Antelope Valley parasite material, which has been carried out in cooperation with the various agricultural commissioners, will continue until cold weather ends the current growing season. (Pest Cont. Rev., U. of Cal., van den Bosch, Hall; October).

MISCELLANEOUS INSECTS

BOXELDER BUG (*Leptocoris trivittatus*) - UTAH - Entering many homes in northern and central areas. (Knowlton).

FIELD CRICKET (*Acheta assimilis*) - IDAHO - Abundant in homes in Moscow area. (Manis).

A MOTH (*Synnoma lynosyrana*) - IDAHO - Abundant flights in Gooding and Shoshone areas. Attacking rabbitbrush. (Barr).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Chor. aux.	Laphyg. frugip.
NEBRASKA(Counties)								
Lincoln 10/5-7	16	96				356		
Lincoln 10/17-30	168	58				587	25	
Lancaster 10/21-11/3	99	171				1594	6	
KANSAS(Counties)								
Manhattan 11/5-10						5		
Hays 10/18-31	2	8				215	59	
Garden City 10/25-31	6	6					11	
TEXAS								
College Station 11/6-8	53	15	5	11		29		12
Weslaco 10/30-31	31	16	9	1		29		18
LOUISIANA								
Curtis 10/29-11/4	28	24		4	40	56		
Franklin 11/1-7	6	14	4	4	47	5		11
Baton Rouge 11/3-8	13	31	13	1	32	13		4
ARKANSAS								
Hope 9/14-10/13		68				401		
Stuttgart 11/1-7	20	15		10		16		
Varner 10/30-11/5	5	10				4		
Fayetteville 11/3-9	8	10				95		
TENNESSEE (Counties)								
Shelby 10/30-11/5	38	110	4	4		106		6
Madison	31	14				75		21
Robertson	84	50	2	3		87		21
Knox	49	48	3	3		11		4
Greene	95	15	11	1		77		17
Blount	27	18	7	1		48		22
Johnson	107	11	1	4		22		
GEORGIA (County)								
Spalding 11/2-8	148	49	4	5	31	39		78
FLORIDA								
Belle Glade 10/30-11/2	6					25		
Monticello 10/30	1				4	3		
Quincy 10/29	8					19		
Gainesville 11/8			3		4			
SOUTH CAROLINA(Counties)								
Oconee 10/28-11/3	10	6	3		2	3		
Florence 10/27-11/2	146	24	13	1	47	60		3
Charleston 10/22-28	9	13	3		11	21		10

Other collections: Louisiana - Franklin 11/1-7 Heliothis virescens - 4;
South Carolina - Charles County 10/22-28 Heliothis virescens - 2.

SUMMARY OF INSECT CONDITIONS - 1956

ARIZONA

Reported by F.G. Werner

Highlights: A heavy infestation of GRASSHOPPERS developed on rangeland in Santa Cruz County in August and September. CORN EARWORM damaged 10-45 percent of grain sorghum in Salt River Valley in mid-August. THREE-CORNERED ALFALFA HOPPER reached record numbers on alfalfa at Yuma in July, affecting alfalfa seed production. PEA APHID reached high numbers on alfalfa in Maricopa and Pinal Counties in April, for first time in three years. SPOTTED ALFALFA APHID reached high numbers on alfalfa in May, third week in July and late August and September; much heavier in September 1956, than in September 1955, in the Salt River Valley and southeastern counties. Reduced in early October at least in Salt River Valley. LYGUS BUGS reached high numbers by mid-July on alfalfa and cotton and continued for most of season. BOLLWORMS started on cotton in late July and continued to be a major problem until mid-August and later in a few areas. Numbers less than in 1955. THRIPS started late on cotton but did damage in mid-June. COTTON LEAF PERFORATOR caused some damage to cotton in all the main areas but damage was heaviest in Yuma County, Buckeye and Eloy. CABBAGE LOOPER became abundant on cotton east of Phoenix to Eloy in August but apparently was reduced by a disease. SPIDER MITES and APHIDS caused only scattered, localized damage to cotton during the season. RHODES-GRASS SCALE was found in the State for the first time.

Cereal and Forage Insects: GRASSHOPPERS - A heavy infestation of *Morseiella flaviventris*, *Melanoplus lakinus*, *Boopedon nubilum*, *Phoetaliotes nebrascensis* and *Melanoplus regalis*, in order of abundance, developed in August in Santa Cruz County. Total of 89,000 acres were involved in a control program on rangeland early in September. ENGLISH GRAIN APHID (*Macrosiphum granarium*) and CORN LEAF APHID (*Rhopalosiphum maidis*) populations became high on barley and wheat from Yuma to Pinal County from mid-March to the end of April and did local damage. The heaviest populations developed too late to cause severe damage. LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) caused light to moderate damage to grain sorghum in the Salt River Valley and at Yuma from mid-July into early August. This insect also caused some damage to soybeans at Phoenix in mid-July. SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) caused moderate to severe damage to grain sorghum plantings in the Salt River Valley and in Graham County in late July and early August. CORN EARWORM (*Heliothis* sp.) caused damage to from 10 to 45 percent of the stalks of grain sorghum in the Salt River Valley in mid-August. This insect caused consistent damage to sweet corn. THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) reached a population of 2 to 4 per sweep in alfalfa seed fields at Yuma in mid-July, the heaviest in three years. Populations remained high at Yuma and in the Salt River

Valley through August. A BROWN STINK BUG (*Euschistus impictiventris*) built up to 66 per 100 sweeps in alfalfa seed fields at Yuma in early August, increasing to 100 per 100 sweeps by the end of August. PEA APHID (*Macrosiphum pisi*) built up to very high numbers on alfalfa in Maricopa and Pinal Counties during April, to several hundred per sweep early in May, reducing by late May. This was the worst infestation in the area for three years. SPOTTED ALFALFA APHID was, in general, lighter than in 1955 during the early part of the year, with only scattered heavily infested fields. During the first week of April there was a rapid increase at Yuma, the only area where significant infestations could be found. By the third week in April there were high infestations from Yuma to Santa Cruz County and at Safford, Graham County. Populations averaged 2.8 per trifoliate leaf in the Salt River Valley May 5. Numbers continued to increase during May but there was a rapid drop at Yuma May 21 and at about the same time in the Salt River Valley, correlated with increase of *Hippodamia convergens* larvae. Infestations became damaging again the third week of July but decreased at Yuma and in the Salt River Valley the end of July and early August. Populations rose again during the second and third weeks in August in the Salt River Valley and the southeastern counties; and during September, reached higher numbers than during this period in 1955. In the Salt River Valley during early September there were 3.36 per leaf (0.21 in 1955) and during late September there were 4.36 (0.12 in 1955). Populations in early October down to 0.55 per leaf in Salt River Valley. LYGUS BUGS (mainly *Lygus hesperus*) populations became very high on alfalfa in all of southern area by mid-July and remained high at least through September. Counts as high as 10 per sweep were recorded during this period in fields not regularly treated with insecticides. This was the main pest in seed fields in Maricopa and Pinal Counties as early as the last week in June. A LEAF MINER (*Liriomyza* sp.) became extremely abundant on alfalfa in Pinal and Maricopa Counties by the third week in June and was abundant from Yuma to Pima County by mid-July, continuing into early August. The heavy infestations came later than in 1955. ALFALFA CATERPILLAR (*Colias philodice eurytheme*) became abundant on alfalfa at Yuma in mid-July, continuing to the end of the month. Counts of up to 50 per 100 sweeps were recorded.

Fruit Insects: CITRUS THRIPS (*Scirtothrips citri*) was general on citrus at Yuma by May 15 and continued on new growth of lemon at least until July 15, causing damage where not treated with insecticides. A MITE (*Eotetranychus yumensis*) caused damage to 2 citrus groves at Yuma mid-July. COTTONY CUSHION SCALE (*Icerya purchasi*) caused severe damage to one citrus grove in the Mesa area, Maricopa County early in the summer.

Truck Crop Insects: BEET ARMYWORM (*Laphygma exigua*) unusually abundant in the Salt River Valley in October, on beets, cabbage and lettuce. CABBAGE LOOPER (*Trichoplusia ni*) unusually abundant on lettuce in the Salt River Valley and Yuma in October. GREEN PEACH APHID (*Myzus persicae*) became abundant on lettuce in the Salt River Valley during the first week of April. MELON APHID (*Aphis gossypii*) reached high numbers in several fields of watermelon in Pima County the third week in July and was generally abundant on melons in the Yuma area toward the end of September, necessitating regular insecticide applications. HORNWORM (Protoparce sp.) caused damage to tomato plantings at Bowie, Cochise County during the end of July and early August.

Cotton Insects: BOLLWORM (Heliothis sp.) was first reported in Pima County May 25 and began increase in all areas by early July. Oviposition heavy in Pima and Pinal Counties July 26. Increase general until mid-August but with some evidence of partial natural control in Pima and Santa Cruz Counties. High counts of 8 to 20 per 100 plants recorded early in August. Populations dropped in most areas in mid-August but continued to be a problem in the Buckeye area of Maricopa County and near Eloy, Pinal County well into September. Fifty larvae per 100 plants recorded for Eloy September 22. The general level of the populations was lower than in 1955, when a severe infestation apparently resulted from a prolonged rainy period. LYGUS BUG (mainly Lygus hesperus) populations increased rapidly on cotton in all areas in mid-July, to about 30 per 100 sweeps, and remained high or increased until mid-August when up to 100 per 100 sweeps were reported. Many applications of insecticides made. There was a general decrease after mid-August but some fields in Maricopa and Pinal Counties had damaging infestations until the end of the month. BLACK FLEAHOPPERS (Spanogonicus albofasciatus and Rhinacloa forticornis) became abundant on cotton in all areas by mid-July, with average high counts about 15 per 100 sweeps. High numbers at Yuma than in past years. THRIPS (Frankliniella occidentalis and F. gossypiana) were lighter than usual on cotton early in the season but built up in mid-June, causing heavy damage. Highest at Yuma in several years. COTTON LEAF PERFORATOR (Bucculatrix thurberiella) was reported on cotton in a number of localities in Yuma, Maricopa, Pinal, Pima, Santa Cruz and Graham Counties. Damage was heaviest in Yuma County, Buckeye region of Maricopa County and at Eloy in Pinal County. High populations starting the third week in July and continuing into September. There were a few reports of earlier damage in and near "stub" fields. CABBAGE LOOPER (Trichoplusia ni) developed high populations on cotton in Pinal County and in the region east of Phoenix about the first week in August. Large numbers continued through August in some fields but a disease reduced numbers, at least in the Eloy area of Pinal County by the end of the month. A LEAFHOPPER (Platynota stultana) was reported on cotton in the Buckeye-Tolleson area of Maricopa County the last week in May; egg masses abundant in mid-June and significant damage from mid-July into early September. Populations up to 85 per 100 plants reported by the end of the season in this area. SALT-MARSH CATERPILLAR (Estigmene acrea) began appearing on cotton in Yuma and Maricopa Counties about the middle of August and populations increased into September. STINK BUG damage to cotton was reported in two areas during the season. Euschistus impictiventris reached 5 to 24 per 100 plants at Yuma the end of July and Chlorochroa sayi reached 10 per 100 plants at Gila Bend, Maricopa County the end of July. A WHITEFLY (Trialeurodes abutilonea) caused some stunting of cotton plants in scattered fields from Maricopa to Santa Cruz Counties from mid-July to early August. SPIDER MITES were generally light during the year on cotton, with scattered fields developing infestations. *Tetranychus atlanticus* became severe in several fields in the Eloy area, Pinal County during the middle of September, continuing to the end of the month. *T. atlanticus* and *T. telarius* became relatively severe in the Tempe-Higley area, Maricopa County in mid-August, on about 100 acres. APHIDS were, in general, light on cotton during the season, only a few fields reported to have had any heavy infestations. One field at Bowie, Cochise County, developed high populations of cotton aphid the third week in August.

Forest, Ornamental and Shade Tree Insects: ELM LEAF BEETLE (*Galerucella xanthomelaena*) developed high populations on Chinese elm in the Phoenix area from June into August, defoliating many trees. RHODES-GRASS SCALE (*Antonina graminis*) was discovered on St. Augustine grass in the Phoenix area at three locations during the summer. This is a new pest for Arizona.

Insects Affecting Man and Animals: BROWN DOG TICK (*Rhipicephalus sanguineus*) became abundant at Yuma and Tucson late in August, continuing into September. Probably also in other large cities. AN EYE GNAT (*Hippelates collusor*) became very abundant in the Yuma region about the middle of May, causing great annoyance. CONENOSE BUGS (mainly *Triatoma rubida uhleri*) adults were first reported in the Tucson area the middle of May. These continued to be a nuisance into June. FIELD CRICKET (*Acheta assimilis*) long-winged adults became a nuisance in the Yuma area the end of August, by flying to lights and into houses in great numbers. A PUSS CATERPILLAR (*Megalopyge* sp.) became more abundant than normal in the Tucson area early in October. Several cases of stinging reported.